SICE Hokuriku Chapter Seminar Presents
4th DSC Seminar 2008 -Dynamical Systems and Control-

The dynamics of confusion and consensus in vehicle formations and mobile sensor network

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Date and Place：2008/7/7（Mon.）13：30 - 14：30（2B716）

Abstract:

 Interest in the dynamics of coordinated and cooperative systems has grown significantly in recent years. Such systems appear in many disciplines; biology (synchronized firefly displays, flocking and schooling behavior), operations management (decentralized dynamic task assignment), environmental science (mobile environmental sensors), aeronautics (autonomous aerial vehicle formations) and computer science (distributed computing consensus) are just a few examples. The focus of this work is high-precision formations and the motivating application is the decentralized control of deep-space interferometric imaging formations. I will examine the issues of confusion and consensus when vehicles estimate each others behavior in the attempt to achieve a common goal and determine the minimum amount of communication required to "control" confusion. The design of distributed estimators over lossy communication channels will be presented.

About the Speaker:

 Roy Smith's research interests are in the areas of: modeling and identification, robust control, spacecraft formation control, model predictive control, and coordinated control. He has developed and applied theory to a variety of experimental testbeds including: process control, automotive and marine engine systems, flexible space structures, aero-maneuvering Mars entry vehicles, formation flying of spacecraft, magnetically levitated bearings, and semiconductor fabrication facilities. He has been a long time consultant to the Jet Propulsion laboratory on guidance, navigation and control aspects of interplanetary and deep space science spacecraft.

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